

**A VECTOR ESTIMATION SYSTEM, METHOD AND ASSOCIATED ENCODER****ABSTRACT OF THE DISCLOSURE**

5 An encoder and associated vector estimation method and system (1) for processing a sequence of input vectors ( $y_0$  to  $y_T$ ) each comprising a plurality of elements. The vector estimation system (1) has a digital filter (2) with a filter vector input (3) for receiving said sequence of  
10 input vectors ( $y_0$  to  $y_T$ ) and a predictor gain input (4) for controlling characteristics of the filter (2). The filter (2) is a Kalman filter and has both a current slowly evolving filter estimate output (6) and a previous slowly evolving filter estimate output (20). The current slowly  
15 evolving filter estimate output (6) provides a current filtered estimate value of a slowly evolving component of said sequence of input vectors ( $y_0$  to  $y_T$ ) and the previous slowly evolving filter estimate output (20) provides a previous filtered estimate value of the slowly evolving  
20 component of said sequence of input vectors ( $y_0$  to  $y_T$ ). There is also a parameter estimator (10) having an estimator vector input (19) for receiving said sequence of input vectors ( $y_0$  to  $y_T$ ) and a previous slowly evolving filter estimate input (13) coupled to the previous slowly evolving  
25 filter estimate output (20). The parameter estimator further includes a predictor gain output coupled (11) to the predictor gain input (4). In operation, when the vector estimation system (1) receives a current input vector that is one of the sequence of said input vectors ( $y_0$  to  $y_T$ ), the  
30 parameter estimator (10) provides a current predictor gain value at the predictor gain output (11) thereby modifying the current filtered estimate value. The current predictor gain value is dependent upon both the previous filtered estimate value and the current input vector.

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